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(58) Field of search
A5R
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(54) Vein stripper

(57) A surgical instrument is dislosed for stripping varicose veins, comprising a slim shaft (12) with a handle at one end and at the opposite end a head (16) in which is formed a passage (18) which can accommodate a vein to be stripped. At least a component of the axis of the passage (18) is parallel to the axis of the shaft (12). A cutting edge can be formed in the face of the head at which one end of the passage emerges. A vein to be stripped is cut and the end inserted in the passage (18). The head (16) of the instrument is worked along the vein severing branch veins as it goes and the vein is thereafter stripped.

FIG.2

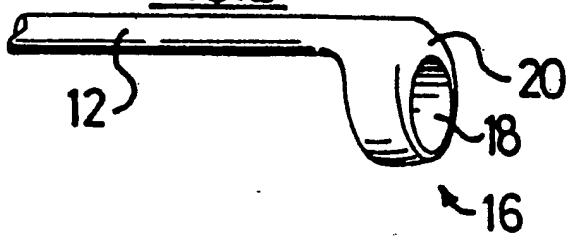

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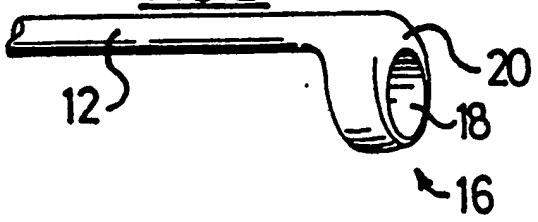
FIG.2



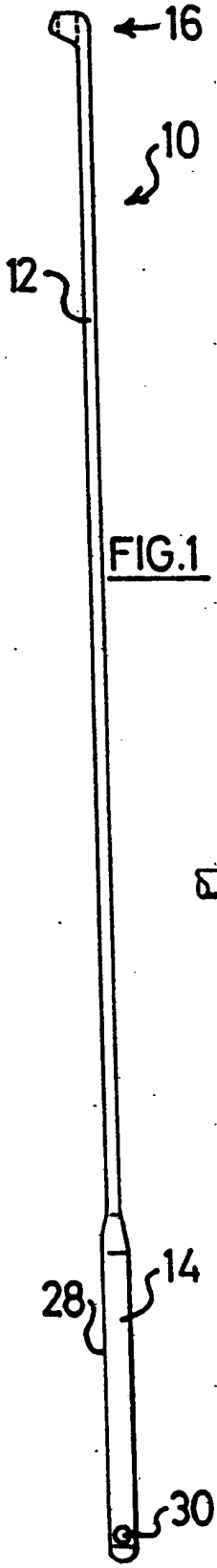


FIG.1

FIG.3

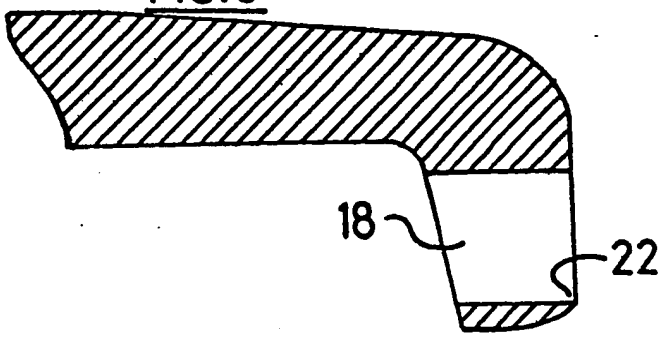
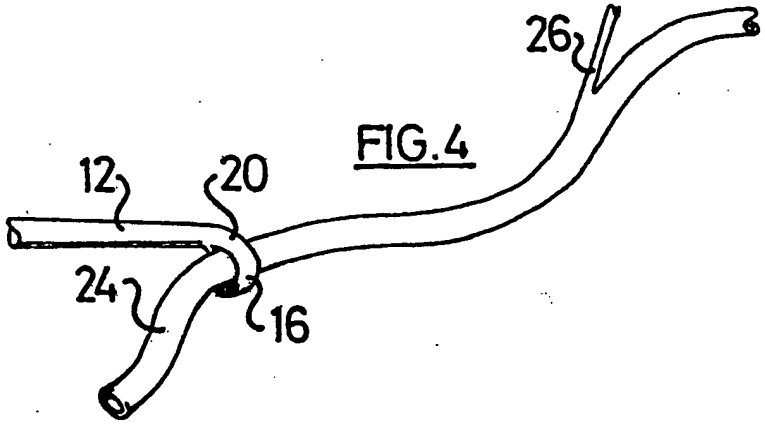


FIG.4



SPECIFICATION

Vein stripper

This invention relates to a surgical instrument and in particular an instrument for stripping veins.

As far as the applicant is aware varicose veins, particularly the saphenous veins, are conventionally stripped by making incisions in the skin, usually at the thigh and at the ankle, to expose the ends of a portion of a vein to be stripped. The exposed ends are then cut and a wire is passed through the portion to be stripped. The end of the vein is then tied to the wire and the vein is removed by pulling the wire out. In this process branches from the parent vein are avulsed with some attendant bruising.

This conventional method is not entirely satisfactory. The wire may not be able to pass through the vein due to excessive tortuosity or previous thrombosis. The vein sometimes tears with the result that only a portion of it is removed. The operation may aggravate existing degenerative skin conditions. The internal stripper does not lend itself to easy removal of a duplex saphenous system nor stripping of major branches. The operation may cause injury to the saphenous nerve since this nerve lies close to the vein in the leg and foot. In the conventional method all of the vein is removed. In the case of the saphenous vein this is not always necessary if there is no disease around the ankle. Since the lower segment of the saphenous vein is used in triple bypass procedures on the vessels of the heart there is good reason to preserve it.

It is believed that these problems have tended to discourage surgeons from performing enthusiastically surgery on varicose veins. It is sought to solve at least some of them by providing an instrument which may be used in vein stripping.

According to the invention there is provided a vein stripper comprising a shaft and, adjacent one end of the shaft, a passage having an axis which is, or has a component which is, parallel to the shaft.

According to one aspect of the invention the passage is formed in a projection which is disposed transversely to the shaft and the passage is disposed transversely to the said projection.

The projection may be substantially perpendicular to the shaft.

It is preferred that the vein stripper has a handle at the end of the shaft opposite the projection.

In a preferred aspect of the invention, the projection comprises a face at which one end of the passage opens and part of the face adjacent the said one end of the passage is sharpened to constitute a cutting edge.

The length of the shaft is not critical to the invention, the length of the shaft is about 90 mm, 350 mm or 500 mm. Advantageously, no part of the cranked portion out of alignment with the shaft has, according to yet another aspect of the invention, a transverse dimension greater than about 7 mm. The diameter of the shaft is advantageously about 4.7 mm or, where the shaft is of short length, about 3.0 mm.

The invention is further discussed with reference to the accompanying drawings in which an embodiment of the invention is described by way of example, and in which

Figure 1 is a view from the side of a vein stripper;

Figure 2 is an enlarged view of one end of the vein stripper;

Figure 3 is a cross sectional view of the same one end of the vein stripper; and

Figure 4 is a sketch of the manner of use of the vein stripper.

In the drawings, there is shown a vein stripper 10 comprising a slim, elongate shaft 12 with a handle 14 at one end and a cranked portion forming a head 16 at the opposite end. In the illustrated embodiment the length of the shaft is 350 mm and the diameter thereof is 4.7 mm. The head 16 is disposed in the illustrated example at 90 degrees to the shaft 12. The head is upset which is to say it is formed so that transverse to the axis of the shaft it is approximately circular and has a diameter somewhat larger than the diameter of the shaft, conveniently 8 mm. A passage 18 is formed in the head. The diameter of the passage in the illustrated embodiment is 6.3 mm which is considered to be an optimum diameter to enable varicose veins which are to be stripped with the use of the stripper to be passed into and through the passage. The axis of the passage 18 is parallel to that of the shaft 12 in the illustrated example. The head has a face 20 which faces away from the shaft and, where it meets the passage, this face is sharpened to form what in use is a cutting edge 22.

In use a groin incision is made and the long saphenous vein is dissected free by ligating and dividing its branches locally. The saphenous vein is ligated at its point of junction with the deep vein and then divided. A small incision is made over the inner side of the ankle and the lower end of the long saphenous vein is isolated. A conventional internal stripper may then be passed up the vein and the vein avulsed by pulling the wire in the usual way.

If any difficulties are encountered at any stage immediate use is made of the vein stripper described, which will be called for convenience an external stripper. Alternatively, the external stripper can be used ab initio. Here, after making the incisions as described above

is passed through the passage 22 of the stripper. The end 24 is then firmly held and the head of the stripper is worked into the leg and along the vein which passes through the passage 18 in the process. As it goes the cutting edge 22 severs branch veins (as shown by way of example at 26). When the surgeon judges that the stripper has been passed far enough along the vein (this being governed, obviously, by how much of the vein is to be removed), the external stripper is withdrawn and the vein is removed either by simply drawing it out or by using a vein hook such as that described in the applicant's co-pending United Kingdom patent application entitled "Vein Hook".

The length of the handle is important principally for the 'feel' of the instrument. In the present case the length may for example be 100 mm. The diameter is 9.5 mm; this should not be exceeded by much more than about 5 mm since the handle lies close to the leg and follows the shaft along the leg in operation. A flat 28 is formed in the handle in alignment with the head 16. This enables the surgeon to judge the orientation of the head on the shaft when the head cannot be seen. A transverse passage 30 is formed in the free end of the handle. This passage enables the instrument to be hooked by an extractor for removal from the leg.

It is envisaged that a set of three external strippers will usually be provided, differing one from the other only in size. One instrument of the set will be longer than that described above. Its shaft length will be 500mm and the handle length may be somewhat greater. Apart from these factors the instrument with the long shaft is substantially identical to that shown in the drawings. The advantage of the longer instrument is that it can pass from the groin to the ankle.

The third instrument in the set is smaller, with proportions differing from the drawings. The shaft length will be 90 mm with a diameter of 3.0 mm. The diameter of the passage in the head will be 4.0 mm and the diameter of the head itself 5.3 mm. This instrument has a slightly different function from those first described in that it is used to strip out segments of vein in other parts of the leg, the head being capable of being passed through an incision 4.0 to 6.0 mm long. It may also be used to strip out small segments of vein under local anaesthetic.

The length of the instrument shown in the drawings (i.e. the medium-sized instrument) is ideal for stripping the short saphenous vein in the back of the leg.

Preferably the shaft should in any case be as slim as possible. It is necessary that it should be strong enough to fulfil its function and for this reason, as well as for ease of

Preferably also the overall transverse size of the head of the stripper should be as small as possible. This size is governed by the size of the passage and the thickness of the material therearound necessary to enable the head to be strong enough to fulfil its function.

While the head is shown perpendicular to the shaft and the axis of the passage parallel to the that of the shaft, these may not be essential characteristics. Particularly as regards the disposition of the passage, some deviation therefrom may be tolerated.

CLAIMS

1. A vein stripper comprising a shaft and, at or adjacent one end of the shaft, a passage having an axis which is, or has a component which, is parallel to the shaft.

2. A vein stripper according to claim 1, wherein the passage is formed in a projection which extends transversely to the shaft, the passage being disposed transversely in the projection.

3. A vein stripper according to claim 2, wherein the projection is substantially perpendicular to the shaft.

4. A vein stripper according to any one of the preceding claims wherein the passage is substantially cylindrical.

5. A vein stripper according to any one of claims 2 to 4 wherein the projection comprises a face at which one end of the passage opens, and part of the face adjacent the said one end of the passage is sharpened to constitute a cutting edge.

6. A vein stripper according to any one of the preceding claims, including a handle located adjacent an end of the shaft opposite the end adjacent which the passage is located.

7. A vein stripper according to claim 6 wherein the handle has a portion of distinguishable shape in alignment with a projection in which the passage is formed.

8. A vein stripper according to any one of the preceding claims wherein the passage is substantially cylindrical.

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